CONTENTS OF VOLUME 21

JANUARY 1993 VOLUME 21 NUMBER 1

CLINICAL STUDIES

Interventional Cardiology

1 **Percutaneous Balloon Pericardiotomy for the Treatment of Cardiac Tamponade and Large Pericardial Effusions: Description of Technique and Report of the First 50 Cases** *Andrew A. Ziskind, A. Craig Pearce, Cyndi C. Lemmon, Steven Burstein, Lawrence W. Gimple, Howard C. Herrmann, Raymond McKay, Peter C. Block, Howard Waldman, Igor F. Palacios*

6 **Can Restenosis After Coronary Angioplasty Be Predicted From Clinical Variables?** *William S. Weintraub, Andrzej S. Kosinski, Charles L. Brown III, Spencer B. King III*

15 **Generalized Model of Restenosis After Conventional Balloon Angioplasty, Stenting and Directional Atherectomy** *Richard E. Kuntz, C. Michael Gibson, Masakiyo Nobuyoshi, Donald S. Baim*

26 **Quantitative Analysis of Elastic Recoil After Balloon Angioplasty and After Intracoronary Implantation of Balloon-Expandable Palmaz-Schatz Stents** *Michael Haude, Raimund Erbel, Hassan Issa, Jürgen Meyer*

35 **Intracoronary Ultrasound Imaging: Correlation of Plaque Morphology With Angiography, Clinical Syndrome and Procedural Results in Patients Undergoing Coronary Angioplasty** *John McB. Hodgson, Karan G. Reddy, Randeep Suneja, Ravi N. Nair, Edward J. Lesnefsky, Helen M. Sheehan*

45 **Histology After Stenting of Human Saphenous Vein Bypass Grafts: Observations From Surgically Excised Grafts 3 to 320 Days After Stent Implantation** *Heleen M. M. van Beusekom, Willem J. van der Giessen, Robert J. van Suylen, Egbert Bos, Fré T. Bosman, Patrick W. Serruys*

Acute Myocardial Infarction

55 **Angiographic Validation of Bedside Markers of Reperfusion** *Prediman K. Shah, Bojan Cercek, Allan S. Lew, William Ganz*

62 **Is ST Segment Re-elevation Associated With Reperfusion an Indicator of Marked Myocardial Damage After Thrombolysis?** *Makoto Kondo, Kouji Tamura, Hitoshi Tanio, Yukio Shimono*

68 **A New Method for Assessment of Collateral Development After Acute Myocardial Infarction** *Masatoshi Fujita, Akira Ohno, Kunihisa Miwa, Ikuo Moriuchi, Junichiro Mifune, Shigetake Sasayama*

Arrhythmias

73 **A Unified Functional/Anatomic Substrate for Circus Movement Atrial Flutter: Activation and Refractory Patterns in the Canine Right Atrial Enlargement Model** *Wolfgang Schoels, Wolfgang Kuebler, Hua Yang, William B. Gough, Nabil El-Sherif*

85 **Differentiation of Paroxysmal Narrow QRS Complex Tachycardias Using the 12-Lead Electrocardiogram** *Steven J. Kalbfleisch, Rafel El-Atassi, Hugh Calkins, Jonathan J. Langberg, Fred Morady*

90 **Polymorphic Ventricular Tachycardia Induced by Programmed Stimulation: Response to Procainamide** *Alfred E. Buxton, Mark E. Josephson, Francis E. Marchlinski, John M. Miller*

99 *Editorial Comment* **Clinical Significance of Polymorphic Ventricular Tachycardia Induced by Programmed Stimulation** *Nabil El-Sherif*

102 **A Prospective Randomized Comparison of Direct Current and Radiofrequency Ablation of the Atrioventricular Junction** *Fred Morady, Hugh Calkins, Jonathan J. Langberg, William F. Armstrong, Michael de Buitleir, Rafel El-Atassi, Steven J. Kalbfleisch*

Sudden Death

110 **Syncope in Advanced Heart Failure: High Risk of Sudden Death Regardless of Origin of Syncope** *Holly R. Middlekauff, William G. Stevenson, Lynne Warner Stevenson, Leslie A. Saxon*

117 **Nonatherosclerotic Narrowing of the Atrioventricular Node Artery and Sudden Death** *Allen P. Burke, Ramiah Subramanian, John Smialek, Renu Virmani*

Congenital Heart Disease

123 **Postoperative Pulmonary Flow Dynamics After Fontan Surgery: Assessment With Nuclear Magnetic Resonance Velocity Mapping** *Sidney A. Rebergen, Jaap Ottenkamp, Joost Doornbos, Ernst E. van der Wall, Jan G. J. Chin, Albert de Roos*

132 **Five-Year Follow-Up After Balloon Pulmonary Valvuloplasty** *Jozef Masura, Michael Burch, John E. Deanfield, Ian D. Sullivan*

137 **Solitary Coronary Ostium in the Aorta in the Absence of Other Major Congenital Cardiovascular Anomalies** *Jamshid Shirani, William C. Roberts*

Coronary Artery Disease

144 **Transesophageal Echocardiographically Detected Atherosclerotic Aortic Plaque Is a Marker for Coronary Artery Disease** *Gary P. Fazio, Rita F. Redberg, Timothy Winslow, Nelson B. Schiller*

151 **Survival 15 to 20 Years After Coronary Bypass Surgery for Angina** *Shahbudin H. Rahimtoola, Cindy L. Fessler, Gary L. Grunkemeier, Albert Starr*

158 **Transformation of Coronary Artery Aneurysm to Obstructive Lesion and the Role of Collateral Vessels in Myocardial Perfusion in Patients With Kawasaki Disease** *Zenshiro Onouchi, Kenji Hamaoka, Yasutaka Kamiya, Shousei Hayashi, Yutaka Ohmochi, Kouichi Sakata, Isao Shiraishi, Takashi Hayano, Hiroshi Fukumochi*

Heart Transplantation

163 **Impaired Coronary Dilator Responses to Substance P and Impaired Flow-Dependent Dilator Responses in Heart Transplant Patients With Graft Vasculopathy** *Andreas Mügge, Bernd Heublein, Michaela Kuhn, Carsten Nolte, Axel Haverich, Jörg Warnecke, Wolf-Georg Forssmann, Paul R. Lichtlen*

171 **Coronary Sinus Sampling of Cytokines After Heart Transplantation: Evidence for Macrophage Activation and Interleukin-4 Production Within the Graft** *Alistair Fyfe, Paul Daly, Luke Galligan, Lidia Pirc, Christopher Feindel, Carl Cardella*

Hypertension

177 **Sympathetic Alterations After Sodium Restriction and Short-Term Captopril Administration** *Paul J. Mills, Joel E. Dimsdale, Michael G. Ziegler, Richard L. Hauger, Richard A. Nelesen, Marvin R. Brown*

Diastolic Dysfunction

182 **Failure of Calcium Channel Blockers to Improve Ventricular Relaxation in Humans** *Rick A. Nishimura, Robert S. Schwartz, David R. Holmes, Jr., A. Jamil Tajik*

Echocardiography

189 **Intracardiac Echocardiography in Humans Using a Small-Sized (6F), Low Frequency (12.5 MHz) Ultrasound Catheter. Methods, Imaging Planes and Clinical Experience** *Steven L. Schwartz, Linda D. Gillam, Andrew R. Weintraub, Brenda W. Sanzobrino, Jeffrey A. Hirst, Tsui-Leih Hsu, John P. Fisher, Gerald Marx, David Fulton, Raymond G. McKay, Natesa G. Pandian*

199 **Increased Echodensity of Transiently Asynergic Myocardium in Humans: A Novel Echocardiographic Sign of Myocardial Ischemia** *Eugenio Picano, Francesco Faletra, Cecilia Marini, Marco Paterni, Giovan Battista Danzi, Massimo Lombardi, Luigi Campolo, Guido Gigli, Luigi Landini, Antonio Pezzano, Alessandro Distante*

208 **Usefulness of Transesophageal Echocardiography in Identifying Small Left Ventricular Apical Thrombus** *Chunguang Chen, Dietmar Koschyk, Christian Hamm, Britta Sievers, Wolfram Kupper, Walter Bleifeld*

216 **Implication of Negative Results on a Monoplane Transesophageal Echocardiographic Study in Patients With Suspected Infective Endocarditis** *Randall A. Sochowski, Kwan-Leung Chan*

222 *Editorial Comment* **Suspected Bacterial Endocarditis: To TEE or Not to TEE** *Bijoy K. Khandheria*

EXPERIMENTAL STUDIES

225 **Passive Smoking Increases Experimental Atherosclerosis in Cholesterol-Fed Rabbits** *Bo-Qing Zhu, Yi-Ping Sun, Richard E. Sievers, William M. Isenberg, Stanton A. Glantz, William W. Parmley*

233 **Blood Flow–Dependent Uptake of Indium-111 Monoclonal Antimyosin Antibody in Canine Acute Myocardial Infarction** *Freny Vaghaiwalla Mody, Denis B. Buxton, Luis I. Araujo, Michael E. Fishbein, Carl E. Selin, Heinrich R. Schelbert, Markus Schwaiger*

240 **Role of Sodium/Calcium Exchange in the Mechanism of Myocardial Stunning: Protective Effect of Reperfusion With High Sodium Solution** *Hideo Kusuoka, Maria C. Camilion de Hurtado, Eduardo Marban*

249 **Platelet and Fibrin Deposition on Coronary Stents in Minipigs: Effect of Hirudin Versus Heparin** *Arnd B. Buchwald, Dirk Sandrock, Christina Unterberg, Martin Ebbecke, Klaus Nebendahl, Stefan Lüders, Dieter L. Munz, Volker Wiegand*

255 **Methylene Blue Inhibits the Antithrombotic Effect of Nitroglycerin** *Michael T. Johnstone, Jules Y. T. Lam, Lucie Lacoste, Johanne Baribeau, Pierre Théroux, David Waters*

260 **Transient Time Course of Cocaine-Induced Cardiac Depression Versus Sustained Peripheral Vasoconstriction** *Chun-Peng Liu, Carol Tunin, David A. Kass*

ACC POSITION STATEMENT

269 **Use of Nonionic or Low Osmolar Contrast Agents in Cardiovascular Procedures** *American College of Cardiology Cardiovascular Imaging Committee. James L. Ritchie, Chairman*

EDITOR'S PAGE

274 **Which References Should Be Cited?** *William W. Parmley*

SPECIAL SECTIONS

ACC News

276 **President's Page: Access to Cardiovascular Care** *Adolph M. Hutter, Jr.*

279 Letters to the Editor

280 Books Received

FEBRUARY 1993 VOLUME 21 NUMBER 2

CLINICAL STUDIES

Thrombolysis

281 **Comparative Case Fatality Analysis of the International Tissue Plasminogen Activator/Streptokinase Mortality Trial: Variation by Country Beyond Predictive Profile** *Gabriel I. Barbash, Michaela Modan, Uri Goldbourt, Harvey D. White, Frans Van de Werf, for the Investigators of the International Tissue Plasminogen Activator/Streptokinase Mortality Trial*

Interventional Cardiology

287 **Coronary Rotational Ablation: Initial Experience in 302 Procedures** *Simon H. Stertzer, Joseph Rosenblum, Richard E. Shaw, Irawan Sugeng, Benito Hidalgo, Colman Ryan, Heidi N. Hansell, Mary C. Murphy, Richard K. Myler*

296 *Editorial Comment* **Rotational Coronary Ablation: More Grist for the Interventional Mill?** *Frank V. Aguirre, Richard Bach, Thomas J. Donohue, Eugene Caracciolo, Morton J. Kern*

298 **Intracoronary Ultrasound Assessment of Directional Coronary Atherectomy: Immediate and Follow-Up Findings** *José Suárez de Lezo, Miguel Romero, Alfonso Medina, Manuel Pan, Djordje Pavlovic, Ricardo Vaamonde, Enrique Hernández, Francisco Melián, Fernando López Rubio, José Marrero, José Segura, Maria Irurita, Jose A. Cabrera*

308 **Analysis of Coronary Blood Flow Velocity Dynamics in Angiographically Normal and Stenosed Arteries Before and After Endolumen Enlargement by Angioplasty** *Elizabeth O. Ofili, Morton J. Kern, Arthur J. Labovitz, Jeanette A. St. Vrain, Jerome Segal, Frank V. Aguirre, Ramon Castello*

317 **Which Angiographic Variable Best Describes Functional Status 6 Months After Successful Single-Vessel Coronary Balloon Angioplasty?** *Benno J. Rensing, Walter R. M. Hermans, Jaap W. Deckers, Pim J. de Feyter, Patrick W. Serruys*

Myocardial Ischemia

325 **Extent of Jeopardized Viable Myocardium Determined by Myocardial Perfusion Imaging Best Predicts Perioperative Cardiac Events in Patients Undergoing Noncardiac Surgery** *Kenneth A. Brown, Michaelanne Rowen*

331 **Relative Importance of Psychologic Traits and Severity of Ischemia in Causing Angina During Treadmill Exercise** *Richard F. Davies, Wolfgang Linden, Habibullah Habibi, W. Peter Klinke, Claude Nadeau, Denis C. Phaneuf, Serge Lepage, Pierre Dessain, Jennifer A. Buttars and Canadian Amlodipine/Atenolol in Silent Ischemia Study (CASIS) Investigators*

337 **Transdermal Nitroglycerin Reduces the Frequency of Anginal Attacks but Fails to Prevent Silent Ischemia** *Enrico Rossetti, Carmelo Luca, Fabrizio Bonetti, Sergio L. Chierchia*

Coronary Physiology

343 **Effect of Increases in Heart Rate and Arterial Pressure on Coronary Flow Reserve in Humans** *James D. Rossen, Michael D. Winniford*

349 **Myocardial Contrast Echocardiography for the Assessment of Coronary Blood Flow Reserve: Validation in Humans** *Thomas R. Porter, Alwyn D'Sa, Carroll Turner, Lori A. Jones, Anthony J. Minisi, Pramod K. Mohanty, George W. Vetrovec, John V. Nixon*

356 ***Editorial Comment*** **Myocardial Contrast Echocardiography Has the Potential for the Assessment of Coronary Microvascular Reserve** *Sanjiv Kaul, Ananda R. Jayaweera*

359 **Enhanced Coronary Blood Flow Velocity During Intraaortic Balloon Counterpulsation in Critically Ill Patients** *Morton J. Kern, Frank V. Aguirre, Satyam Tatineni, Danny Penick, Harvey Serota, Thomas Donohue, Kenneth Walter*

Coronary Artery Disease

369 **Isolated Left Main Coronary Ostial Stenosis in Oriental People: Operative, Histopathologic and Clinical Findings in Six Patients** *Kwang Kon Koh, Hweung Kon Hwang, Pan Gum Kim, Sang Hoon Lee, Sang Kyoon Cho, Sam Soo Kim, Jae Jin Han, Young Tak Lee, Pyo Won Park, Dong Heon Yoon*

Valvular Heart Disease

374 **Noninvasive Estimation of Regurgitant Flow Rate and Volume in Patients With Mitral Regurgitation by Doppler Color Mapping of Accelerating Flow Field** *Chunguang Chen, Dietmar Koschyk, Carsten Brockhoff, Sören Heik, Christian Hamm, Walter Bleifeld, Wolfram Kupper*

384 **Determinants of Stroke Volume Response to Exercise in Patients With Mitral Stenosis: A Doppler Echocardiographic Study** *Michel Dahan, Catherine Paillole, Denise Martin, René Gourgon*

390 **Percutaneous Balloon Mitral Valvotomy With the Inoue Single-Balloon Catheter: Commissural Morphology as a Determinant of Outcome** *Diane Fatkin, Paul Roy, John J. Morgan, Michael P. Feneley*

398 **Echocardiographic Description of the CarboMedics Bileaflet Prosthetic Heart Valve** *John Chambers, Justin Cross, Phillip Deverall, Edgar Sowton*

Pulmonary Hypertension

406 **Pulmonary Artery Hemodynamics in Primary Pulmonary Hypertension** *Warren K. Laskey, Victor A. Ferrari, Harold I. Palevsky, William G. Kussmaul*

413 **Effects of Adenosine in Combination With Calcium Channel Blockers in Patients With Primary Pulmonary Hypertension** *Shmuel Inbar, Bruce J. Schrader, Elizabeth Kaufmann, Robert E. Vestal, Stuart Rich*

Congestive Heart Failure

419 **Hemodynamic Correlates of the Third Heart Sound During the Evolution of Chronic Heart Failure** *Tatsuji Kono, Howard Rosman, Mohsin Alam, Paul D. Stein, Hani N. Sabbah*

424 **Isolated Ultrafiltration in Moderate Congestive Heart Failure** *Pier Giuseppe Agostoni, Gian Carlo Marenzi, Mauro Pepi, Elisabetta Doria, Alessandro Salvioni, Giovanni Perego, Gianfranco Lauri, Francesco Giraldi, Sergio Grazi, Maurizio D. Guazzi*

Arrhythmias

432 **Radiofrequency Ablation for Atrioventricular Node Reentrant Tachycardia: Comparison Between Fast (Anterior) and Slow (Posterior) Pathway Ablation** *Raul D. Mitrani, Lawrence S. Klein, F. Kevin Hackett, Douglas P. Zipes, William M. Miles*

442 **Effects of Carbon Monoxide Exposure in Patients With Documented Cardiac Arrhythmias** *Thomas E. Dahms, Liwa T. Younis, Robert D. Wiens, Shahriar Zarnegar, Shelia L. Byers, Bernard R. Chaitman*

451 **Hematologic Correlates of Left Atrial Spontaneous Echo Contrast and Thromboembolism in Nonvalvular Atrial Fibrillation** *Ian W. Black, Colin N. Chesterman, Andrew P. Hopkins, Lincoln C. L. Lee, Beng H. Chong, Warren F. Walsh*

Congenital Heart Disease

458 **Selective Anterograde Coronary Arteriography in Neonates With d-Transposition of the Great Arteries: Accuracy and Safety** *Vivekanand Allada, Jay M. Jarmakani, Ronald W. Day, Alvaro Galindo, Josephine B. Isabel-Jones*

465 **Enlarged Bronchial Arteries After Early Repair of Transposition of the Great Arteries** *Gil Wernovsky, Nancy D. Bridges, Valerie S. Mandell, Aldo R. Castañeda, Stanton B. Perry*

Pharmacology

471 **Effect of Zatebradine on Contractility, Relaxation and Coronary Blood Flow** *Jeffrey A. Breall, Jun Watanabe, William Grossman*

EXPERIMENTAL STUDIES

478 **Doppler Color Flow Mapping of Epicardial Coronary Arteries: Initial Observations** *Jayashri R. Aragam, Joan Main, J. Luis Guerrero, Gus J. Vlahakes, James F. Southern, Mark S. Adams, Arthur E. Weyman, Robert A. Levine*

488 **Exogenous Prostacyclin Decreases Vasoconstriction but Not Platelet Thrombus Deposition After Arterial Injury** *Jules Y. T. Lam, James H. Chesebro, Lina Badimon, Valentin Fuster*

493 **Endogenous Prostaglandin Endoperoxides May Alter Infarct Size in the Presence of Thromboxane Synthase Inhibition: Studies in a Rabbit Model of Coronary Artery Occlusion–Reperfusion** *Paolo Golino, Giuseppe Ambrosio, Bruno Villari, Massimo Ragni, Amelia Focaccio, Leonardo Pace, Fred De Clerk, Mario Condorelli, Massimo Chiariello*

502 **High Dose Intravenous Aspirin, Not Low Dose Intravenous or Oral Aspirin, Inhibits Thrombus Formation and Stabilizes Blood Flow in Experimental Coronary Vascular Injury** *Judith K. Mickelson, Paul T. Hoff, Jonathon W. Homeister, Joseph C. Fantone, Benedict R. Lucchesi*

511 ***Editorial Comment*** **Effects of Aspirin in Arterial Thrombosis: Why Don't Animals Behave the Way Humans Do?** *Paulette Mehta, Jawahar L. Mehta*

514 **Long-Term Oral Nitrate Therapy Prevents Chronic Ventricular Remodeling in the Dog** *Kenneth M. McDonald, Gary S. Francis, John Matthews, David Hunter, Jay N. Cohn*

523 **Selective Elimination of Retrograde Conduction by Intraoperative Neodymium: YAG Laser Photocoagulation in Dogs** *Laszlo Littmann, Robert H. Svenson, Saroja Bharati, Maurice Lev, Chi Hui Chuang, Pal Kempler, Robert Splinter, Jan R. Tuntelder, George P. Tatsis*

SPECIAL ARTICLE

531 **Cardiovascular Effects of Lightning Strikes** *Robert Lichtenberg, David Dries, Kathleen Ward, Wendy Marshall, Patrick Scanlon*

REVIEW ARTICLE

537 **Does Reperfusion Injury Exist in Humans?** *Robert A. Kloner*

ACC POLICY STATEMENT

546 **Recommendations for Peripheral Transluminal Angioplasty: Training and Facilities** *American College of Cardiology Peripheral Vascular Disease Committee, John A. Spittell, Jr., Chairman*

EDITOR'S PAGE

549 **Do You Want Your Child to Become a Doctor?** *William W. Parmley*

SPECIAL SECTIONS

ACC NEWS

550 **President's Page: Innovations That Work, Members Who Care: ACC Chapters** *Adolph M. Hutter, Jr.*

553 LETTERS TO THE EDITOR

FEBRUARY 1993 VOLUME 21 NUMBER 2 (SUPPLEMENT A) ABSTRACTS

Abstracts of Original Contributions to Be Presented at the American College of Cardiology 42nd Annual Scientific Session March 14–18, 1993, Anaheim, California

1A **Original Contributions: Young Investigators Awards Competition**

3A **Original Contributions: Computer Applications Program**

17A **Original Contributions: 42nd Annual Scientific Session**

489A **Acknowledgments**

491A **Author Index**

527A **Subject Index**

MARCH 1, 1993 VOLUME 21 NUMBER 3

CLINICAL STUDIES

CATHETER ABLATION

557 **Comparison of High Energy Direct Current and Radiofrequency Catheter Ablation of the Atrioventricular Junction** *Jeffrey E. Olgin, Melvin M. Scheinman*

565 *Editorial Comment* **Direct Current and Radiofrequency Catheter Ablation: So Far and Yet So Near** *John D. Fisher*

567 **Safety, Feasibility and Cost of Outpatient Radiofrequency Catheter Ablation of Accessory Atrioventricular Connections** *Steven J. Kalbfleisch, Rafel El-Atassi, Hugh Calkins, Jonathan J. Langberg, Fred Morady*

571 **Catheter Ablation of Accessory Atrioventricular Pathways in Young Patients: Use of Long Vascular Sheaths, the Transseptal Approach and a Retrograde Left Posterior Parallel Approach** *J. Philip Saul, J. Edward Hulse, Wang De, Allison T. Weber, Larry A. Rhodes, James E. Lock, Edward P. Walsh*

INTERVENTIONAL CARDIOLOGY

584 **Ischemia-Induced Regional Wall Motion Abnormality Is Improved After Coronary Angioplasty: Demonstration by Dobutamine Stress Echocardiography** *Kwame Osei Akosah, Thomas R. Porter, Ramona Simon, John T. Funai, Anthony J. Minisi, Pramod K. Mohanty*

590 **Prophylactic Versus Standby Cardiopulmonary Support for High Risk Percutaneous Transluminal Coronary Angioplasty** *Paul S. Teirstein, Robert A. Vogel, Gerald Dorros, Simon H. Stertzer, M. G. Vandormael, Sidney C. Smith, Jr., Paul A. Overlie, William W. O'Neill*

597 **Lack of Impact of Early Catheterization and Fibrin Specificity on Bleeding Complications After Thrombolytic Therapy** *Thomas C. Wall, Robert M. Califf, Stephen G. Ellis, Kristina Sigmon, Dean Kereiakes, Barry S. George, Joseph Samaha, David Sane, David C. Stump, Richard S. Stack, Eric J. Topol for the TAMI Study Group*

604 **Histologic Studies in Percutaneous Transluminal Coronary Angioplasty for Chronic Total Occlusion: Comparison of Tapering and Abrupt Types of Occlusion and Short and Long Occluded Segments** *Masayuki Katsuragawa, Hisayoshi Fujiwara, Masami Miyamae, Shigetake Sasayama*

612 **Delayed Recovery of Coronary Resistive Vessel Function After Coronary Angioplasty** *Neal G. Uren, Tom Crake, David C. Lefroy, Ranil de Silva, Graham J. Davies, Attilio Maseri*

622 **Thrombosis of a Flexible Coil Coronary Stent: Frequency, Predictors and Clinical Outcome** *F. Colin Nath, David W. M. Muller, Stephen G. Ellis, Uri Rosenschein, Anthony Chapekis, Laura Quain, Connie Zimmerman, Eric J. Topol*

CONGESTIVE HEART FAILURE

628 **Which Subgroup of Patients With Dilated Cardiomyopathy Would Benefit From Long-Term Beta-Blocker Therapy? A Histologic Viewpoint** *Takahisa Yamada, Masatake Fukunami, Masaharu Ohmori, Katsuomi Iwakura, Kazuaki Kumagai, Nobuhiko Kondoh, Tetsuo Minamino, Eiichiro Tsujimura, Tomofumi Nagareda, Kiyoshi Kotoh, Noritake Hoki*

634 **Clinical and Prognostic Significance of Serum Magnesium Concentration in Patients With Severe Chronic Congestive Heart Failure: The PROMISE Study** *Eric J. Eichhorn, P. K. Tandon, Robert DiBianco, Gerald C. Timmis, Paul E. Fenster, James Shannon, Milton Packer on behalf of the PROMISE Study Investigators and Coordinators*

641 **Pulmonary and Peripheral Vascular Factors Are Important Determinants of Peak Exercise Oxygen Uptake in Patients With Heart Failure** *Mark D. Kraemer, Spencer H. Kubo, Thomas S. Rector, Nancy Brunsvold, Alan J. Bank*

649 **Discordance in Degree of Right and Left Ventricular Dilation in Patients With Dilated Cardiomyopathy: Recognition and Clinical Implications** *Jannet F. Lewis, Jan Dixon Webber, Laddeus L. Sutton, Solomon Chesoni, Charles L. Curry*

655 **Sustained Augmentation of Parasympathetic Tone With Angiotensin-Converting Enzyme Inhibition in Patients With Congestive Heart Failure** *Philip F. Binkley, Garrie J. Haas, Randall C. Starling, Enrico Nunziata, Patricia A. Hatton, Carl V. Leier, Robert J. Cody*

662 **Importance of Left Ventricular Minimal Pressure as a Determinant of Transmitral Flow Velocity Pattern in the Presence of Left Ventricular Systolic Dysfunction** *Kazuhiro Yamamoto, Tohru Masuyama, Jun Tanouchi, Masaaki Uematsu, Yasuji Doi, Johji Naito, Masatsugu Hori, Michihiko Tada, Takenobu Kamada*

VENTRICULAR REMODELING

673 **Nonparallel Changes in Global Left Ventricular Chamber Volume and Muscle Mass During the First Year After Transmural Myocardial Infarction in Humans** *John A. Rumberger, Thomas Behrenbeck, Jerome R. Breen, Judd E. Reed, Bernard J. Gersh*

683 **Benefit of Late Coronary Reperfusion on Ventricular Morphology and Function After Myocardial Infarction** *Stefan M. Nidorf, Samuel C. Siu, Gabe Galambos, Arthur E. Weyman, Michael H. Picard*

MYOCARDIAL ISCHEMIA

692 **Intracoronary Artery Thrombus Formation in Unstable Angina: A Clinical, Biochemical and Angiographic Correlation** *Robert L. Wilensky, Patrick D. V. Bourdillon, Vernon A. Vix, Jack A. Zeller*

700 **Prognostic Implications of Myocardial Ischemia During Daily Life in Low Risk Patients With Coronary Artery Disease** *Arshed A. Quyyumi, Julio A. Panza, Jean G. Diodati, Timothy S. Callahan, Robert O. Bonow, Stephen E. Epstein*

709 **Hemodynamic Tolerability and Anti-ischemic Efficacy of High Dose Intravenous Diltiazem in Patients With Normal Versus Impaired Ventricular Function** *Willem J. Remme, X. Hanno Krauss, Diederik C. A. van Hoogenhuyze, Dick A. C. M. Kruyssen*

METHODS

721 **Response of the Interatrial Septum to Transatrial Pressure Gradients and Its Potential for Predicting Pulmonary Capillary Wedge Pressure: An Intraoperative Study Using Transesophageal Echocardiography in Patients During Mechanical Ventilation** *Fred M. Kusumoto, Isobel A. Muhiudeen, Helmut F. Kuecherer, Michael K. Cahalan, Nelson B. Schiller*

729 **Frequency Domain Measures of Heart Period Variability to Assess Risk Late After Myocardial Infarction** *J. Thomas Bigger, Jr., Joseph L. Fleiss, Linda M. Rolnitzky, Richard C. Steinman*

737 **Enhancement of Doppler Flow Signals in the Left Heart Chambers by Intravenous Injection of Sonicated Albumin** *Akihiro Terasawa, Kunio Miyatake, Satoshi Nakatani, Masakazu Yamagishi, Hisao Matsuda, Shintaro Beppu*

743 **A New Integrated System for Three-Dimensional Echocardiographic Reconstruction: Development and Validation for Ventricular Volume With Application in Human Subjects** *Mark D. Handschumacher, Jean-Paul Lethor, Samuel C. Siu, Donato Mele, J. Miguel Rivera, Michael H. Picard, Arthur E. Weyman, Robert A. Levine*

754 **Clinical Significance and Origin of Artifacts in Transesophageal Echocardiography of the Thoracic Aorta** *Alan F. Appelbe, Peter G. Walker, J. K. Yeoh, Anthony Bonitatibus, Ajit P. Yoganathan, Randolph P. Martin*

PACING

761 **Measurements of Cardiac Output by Impedance Cardiography in Pacemaker Patients at Rest: Effects of Various Atrioventricular Delays** *Ilya Ovsyshcher, Reuven Zimlichman, Amos Katz, Chava Bondy, Seymour Furman*

PEDIATRIC CARDIOLOGY

768 **Tetralogy of Fallot, Truncus Arteriosus, Abnormal Myocardial Architecture and Anomalies of the Aortic Arch System Induced by Bis-Diamine in Rat Fetuses** *Toshiro Kuribayashi, William C. Roberts*

EXPERIMENTAL STUDIES

777 **Computational Structural Analysis Based on Intravascular Ultrasound Imaging Before In Vitro Angioplasty: Prediction of Plaque Fracture Locations** *Richard T. Lee, Howard M. Loree, George C. Cheng, Eric H. Lieberman, Nicholas Jaramillo, Frederick J. Schoen*

783 **Measurement From Arteriograms of Regional Myocardial Bed Size Distal to Any Point in the Coronary Vascular Tree for Assessing Anatomic Area at Risk** *Christian Seiler, Richard L. Kirkeeide, K. Lance Gould*

798 **Regional Changes in Blood Flow, Extracellular Potassium and Conduction During Myocardial Ischemia and Reperfusion** *Robert J. Hariman, Eric K. Louie, Rick L. Krahmer, Siobhan M. Bremner, David Euler, Ming H. Hwang, James L. Ferguson, Henry S. Loeb*

809 **Is Esmolol Cardioprotective? Tolerance of Pacing Tachycardia, Acute Afterloading and Hemodilution in Dogs With Coronary Stenosis** *Donat R. Spahn, Peter E. Frasco, William D. White, L. Richard Smith, Robert L. McRae, Bruce J. Leone*

REVIEW ARTICLE

822 **Issues in Contemporary Cardiac Rehabilitation: A Historical Perspective** *Fredric J. Pashkow*

EDITORIAL

835 **It Is All in the Numbers** *Stanton A. Glantz*

ACC POSITION STATEMENT

838 **Radionuclide Scintirenography in the Evaluation of Patients With Hypertension** *Sheldon G. Sheps, M. Donald Blaufox, Joseph V. Nally, Jr., Stephen C. Textor*

EDITOR'S PAGE

840 **Emergence of the Cardiologist-Entrepreneur** *William W. Parmley*

SPECIAL SECTIONS

ACC News

842 **President's Page: A Prescription for the ACC Health Policy Process** *Adolph M. Hutter, Jr.*

844 **Newly Elected Members of the College**

848 **Corrections**

848 **Letters to the Editor**

850 **Books Received**

MARCH 15, 1993 VOLUME 21 NUMBER 4

CLINICAL STUDIES

Interventional Cardiology

851 **Immediate Sealing of Arterial Puncture Sites After Cardiac Catheterization and Coronary Angioplasty Using a Biodegradable Collagen Plug: Results of an International Registry** *Sjef M. P. G. Ernst, R. Melvyn TjonJoeGin, Rainer Schräder, Martin Kaltenbach, Ulrich Sigwart, Timothy A. Sanborn, H. W. Thijs Plokker*

856 **Effect of Balloon Mitral Valvuloplasty on Exercise Capacity, Ventilation and Skeletal Muscle Oxygenation** *Kevin P. Marzo, Howard C. Herrmann, Donna M. Mancini*

866 **Intracoronary Stenting Compared With Conventional Therapy for Abrupt Vessel Closure Complicating Coronary Angioplasty: A Matched Case-Control Study** *A. Michael Lincoff, Eric J. Topol, Anthony T. Chapekis, Barry S. George, Richard J. Candela, David W. M. Muller, Connie A. Zimmerman, Stephen G. Ellis*

876 **Reliability of Quantitative Coronary Angiography of the Target Lesion Immediately and 1 Day After Coronary Balloon and Excimer Laser Angioplasty** *Melitta B. Preisack, Anastasios Athanasiadis, Wolfram Voelker, Karl R. Karsch*

Electrophysiology

885 **Clinical Experience With Antitachycardia Pacing and Improved Detection Algorithms in a New Implantable Cardioverter-Defibrillator** *Dietmar Wietholt, Michael Block, Frank Isbruch, Dirk Böcker, Martin Borggrefe, Mohammad Shenasa, Günter Breithardt*

895 **Importance of Abortive Shock Capability With Electrogram Storage in Cardioverter-Defibrillator Devices** *Jodie L. Hurwitz, Bruce G. Hook, Belinda T. Flores, Francis E. Marchlinski*

901 **Radiofrequency Ablation for Treatment of Primary Atrial Tachycardias** *G. Neal Kay, Felipe Chong, Andrew E. Epstein, Sharon M. Dailey, Vance J. Plumb*

910 **Radiofrequency Catheter Ablation of Ectopic Atrial Tachycardia Using Paced Activation Sequence Mapping** *Cynthia M. Tracy, John F. Swartz, Ross D. Fletcher, Harry G. Hoops, Allen J. Solomon, Pamela E. Karasik, Diane Mukherjee*

918 ***Editorial Comment*** **Arrhythmias on the Endangered List** *Douglas P. Zipes*

Myocardial Infarction

920 **Outcome of Patients With Diabetes Mellitus and Acute Myocardial Infarction Treated With Thrombolytic Agents** *Christopher B. Granger, Robert M. Califf, Sharon Young, Richard Candela, Joseph Samaha, Seth Worley, Dean J. Kereiakes, Eric J. Topol and the Thombolysis and Angioplasty in Myocardial Infarction (TAMI) Study Group*

926 **Differing Patterns of Cardiac Parasympathetic Activity and Their Evolution in Selected Patients With a First Myocardial Infarction** *Andrew D. Flapan, Robert A. Wright, Jim Nolan, James M. M. Neilson, David J. Ewing*

932 **Two-Dimensional Echocardiographic Assessment of Papillary Muscle Contractility in Patients With Prior Myocardial Infarction** *Akira Kisanuki, Yutaka Otsuji, Ryuichi Kuroiwa, Takashi Murayama, Ryoji Matsushita, Kunihiko Shibata, Toshiro Yutsudo, Shoichiro Nakao, Kunihiro Nomoto, Tsutomu Tomari, Hiromitsu Tanaka*

Hypertension

939 **Noninvasive Assessment of the Direct Action of Oral Nifedipine and Nicardipine on Left Ventricular Contractile State in Patients With Systemic Hypertension: Importance of Reflex Sympathetic Responses** *Kenneth M. Borow, Alex Neumann, Roberto M. Lang, Donna Ehler, Barbara Valentine-Bates, Andrew Wolff, Karen Friday, Michael Murphy*

Stress Testing

950 **Digital Supine Bicycle Stress Echocardiography: A New Technique for Evaluating Coronary Artery Disease** *Harvey S. Hecht, Larry DeBord, Richard Shaw, Robert Dunlap, Colman Ryan, Simon H. Stertzer, Richard K. Myler*

957 **Dobutamine Stress Echocardiography Predicts Surgical Outcome in Patients With an Aortic Aneurysm and Peripheral Vascular Disease** *Víctor G. Dávila-Román, Alan D. Waggoner, Gregorio A. Sicard, Edward M. Geltman, Kenneth B. Schechtman, Julio E. Pérez*

Angina Pectoris

964 **A Dose-Response Study of Clentiazem, a Chloro-Derivative of Diltiazem, in Patients With Stable Angina** *David Waters, Denis Garceau, for the CAMCAT Study Group*

Heart Failure

971 **A Cyclic Breathing Pattern in Patients With Poor Left Ventricular Function and Compensated Heart Failure: A Mild Form of Cheyne-Stokes Respiration?** *Harry Feld, Steven Priest*

Heart Transplantation

975 **Trends in Patient Selection for Heart Transplantation** *Spencer H. Kubo, Sofia M. Ormaza, Gary S. Francis, Susan C. Holmer, Maria Teresa Olivari, R. Morton Bolman III, Sara J. Shumway*

982 **Fish Oil Improves Endothelium-Dependent Coronary Vasodilation in Heart Transplant Recipients** *F. James Fleischhauer, Wei-dong Yan, Tim A. Fischell*

SURGERY

990 **Pulmonary Embolism After Cardiac Surgery** *Miguel Josa, Samer Y. Siouffi, Andrew B. Silverman, Ernest M. Barsamian, Shukri F. Khuri, G. V. R. K. Sharma*

PEDIATRIC CARDIOLOGY

997 **Relation of Left Ventricular Mass, Preload, Afterload and Contractility in Pediatric Patients With Essential Hypertension** *Thomas R. Kimball, Stephen R. Daniels, Jennifer M. H. Loggie, Philip Khoury, Richard A. Meyer*

1002 **Discrepancies in Aortic Growth Explain Aortic Arch Gradients During Exercise** *Howard S. Weber, Stephen E. Cyran, Marek Grzeszczak, John L. Myers, Marie M. Gleason, Barry G. Baylen*

EXPERIMENTAL STUDIES

1008 **Cyclic Flow Variations in a Conscious Dog Model of Coronary Artery Stenoses and Endothelial Injury Correlate With Acute Ischemic Heart Disease Syndromes in Humans** *Hisao Ikeda, Yoshinori Koga, Kazunori Kuwano, Hiroshi Nakayama, Takafumi Ueno, Noriko Yoshida, Kyo Adachi, In Soo Park, Hironori Toshima*

1018 **Effect of Stenosis Geometry on the Doppler-Catheter Gradient Relation In Vitro: A Manifestation of Pressure Recovery** *Helmut Baumgartner, Heinz Schima, Gerald Tulzer, Peter Kühn*

1026 *Editorial Comment* **Pressure Recovery Distal to Stenoses: Expanding Clinical Applications of Engineering Principles** *Robert A. Levine, Edward G. Cape, Ajit P. Yoganathan*

1029 **Increased Heart Rate Can Cause Underestimation of Regurgitant Jet Size by Doppler Color Flow Mapping** *Edward G. Cape, Ajit P. Yoganathan, Robert A. Levine*

SPECIAL SECTIONS

1038 **BOOKS RECEIVED**

APRIL 1993 VOLUME 21 NUMBER 5

CLINICAL STUDIES

THROMBOLYSIS

1039 **Evidence for a Rebound Coagulation Phenomenon After Cessation of a 4-Hour Infusion of a Specific Thrombin Inhibitor in Patients With Unstable Angina Pectoris** *Herman K. Gold, Frank W. Torres, Harry D. Garabedian, Wendy Werner, Ik-Kyung Jang, Agha Khan, J. Nathan Hagstrom, Tsunehiro Yasuda, Robert C. Leinbach, John B. Newell, Edwin G. Bovill, David C. Stump, Désiré Collen*

1048 *Editorial Comment* **Thrombin Inhibitors in Unstable Angina: Rebound or Continuation of Angina After Argatroban Withdrawal?** *James T. Willerson, Ward Casscells*

MYOCARDIAL ISCHEMIA

1052 **Effect of a Standardized Meal on the Threshold of Exercise-Induced Myocardial Ischemia in Patients With Stable Angina** *Philippe Colles, Martin Juneau, Jean Grégoire, Lucie Larivée, Alessandro Desideri, David Waters*

1058 **Do False Positive Thallium-201 Scans Lead to Unnecessary Catheterization? Outcome of Patients With Perfusion Defects on Quantitative Planar Thallium-201 Scintigraphy** *Rene L. Desmarais, Sanjiv Kaul, Denny D. Watson, George A. Beller*

1064 **Factors Affecting Uniformity in Interpretation of Planar Thallium-201 Imaging in a Multicenter Trial** *Frans J. Th. Wackers, Monty Bodenheimer, Joseph L. Fleiss, Mary Brown and the Multicenter Study on Silent Myocardial Ischemia (MSSMI) Thallium-201 Investigators*

1075 **Effects of Intravenous Theophylline on Exercise-Induced Myocardial Ischemia. I. Impact on the Ischemic Threshold** *Gary V. Heller, Marilyn McFarland Barbour, Rifat B. Dweik, Joseph J. Corning, Joseph R. McClellan, Carol Ewing Garber*

1080 **Paradoxic Hypotension During Dobutamine Stress Echocardiography: Clinical and Diagnostic Implications** *Pamela A. Marcovitz, David S. Bach, Wilson Mathias, Viktoria Shayna, William F. Armstrong*

1087 **Exercise Echocardiography for the Evaluation of Patients After Nonsurgical Coronary Artery Revascularization** *Horst Mertes, Raimund Erbel, Uwe Nixdorff, Susanne Mohr-Kahaly, Stefan Krüger, Jürgen Meyer*

HEART FAILURE

1094 **Long-Term (3-month) Effects of a New Beta-Blocker (Nebivolol) on Cardiac Performance in Dilated Cardiomyopathy** *Thomas Wisenbaugh, Ivor Katz, Jean Davis, Rafique Essop, John Skoularigis, Shirley Middlemost, Christian Röthlisberger, Daniel Skudicky, Pinhas Sareli*

1101 **Physical Training Improves Skeletal Muscle Metabolism in Patients With Chronic Heart Failure** *Stamatis Adamopoulos, Andrew J. S. Coats, François Brunotte, Leonard Arnolda, Theo Meyer, Campbell H. Thompson, Jeff F. Dunn, John Stratton, Graham J. Kemp, George K. Radda, Bheeshma Rajagopalan*

1107 **Angiotensin II and Sympathetic Activity in Patients With Congestive Heart Failure** *Steven R. Goldsmith, Gregory J. Hasking, Elizabeth Miller*

1114 **Reversed Closure Sequence of the Mitral and Tricuspid Valves in Congestive Heart Failure** *Peter S. Rahko, James A. Shaver, Rosemarie Salerni*

DIASTOLIC FUNCTION

1124 **Effects of Induced Asynchrony on Left Ventricular Diastolic Function in Patients With Coronary Artery Disease** *Sandro Betocchi, Federico Piscione, Bruno Villari, Leonardo Pace, Andrea Ciarmiello, Pasquale Perrone-Filardi, Carmen Salvatore, Marco Salvatore, Massimo Chiariello*

Heart Transplantation

1132 **Vasovagal Reactions May Occur After Orthotopic Heart Transplantation** *Adam Paul Fitzpatrick, Nicolas Banner, Alfred Cheng, Magdi Yacoub, Richard Sutton*

1138 ***Editorial Comment*** **Role of Ventricular Vagal Afferents in the Vasovagal Reaction** *Menashe B. Waxman, Douglas A. Cameron, Robert W. Wald*

1142 **Is Intravenous Glucocorticoid Therapy Better Than an Oral Regimen for Asymptomatic Cardiac Rejection? A Randomized Trial** *Jon A. Kobashigawa, Lynne W. Stevenson, Jaime D. Moriguchi, Nobuyuki Kawata, Erica Brownfield, Davis C. Drinkwater, Hillel Laks*

Vascular Reactivity

1145 **Effect of Antihypertensive Treatment on Endothelium-Dependent Vascular Relaxation in Patients With Essential Hypertension** *Julio A. Panza, Arshed A. Quyyumi, Timothy S. Callahan, Stephen E. Epstein*

1152 **Response of Human Coronary Arteries to Acetylcholine After Injury by Coronary Angioplasty** *Hassan El-Tamimi, Graham J. Davies, Filippo Crea, Attilio Maseri*

Interventional Cardiology

1158 **Coronary Artery Perforation During Excimer Laser Coronary Angioplasty** *John A. Bittl, Thomas J. Ryan, Jr., John F. Keaney, Jr., James E. Tcheng, Stephen G. Ellis, Jeffrey M. Isner, Timothy A. Sanborn, for the Percutaneous Excimer Laser Coronary Angioplasty Registry*

1166 **Mechanisms of Restenosis and Redilation Within Coronary Stents—Quantitative Angiographic Assessment** *Paul C. Gordon, C. Michael Gibson, David J. Cohen, Joseph P. Carrozza, Richard E. Kuntz, Donald S. Baim*

Coronary Bypass Surgery

1175 **Long-Term Angiographic Follow-Up of Normal and Minimally Diseased Saphenous Vein Grafts** *Enrique E. Campos, Joseph A. Cinderella, Eli R. Farhi*

1181 **Percutaneous Angioscopy of Saphenous Vein Coronary Bypass Grafts** *Christopher J. White, Stephen R. Ramee, Tyrone J. Collins, Juan E. Mesa, Ashit Jain*

Electrophysiology

1186 **Implantable Cardioverter-Defibrillator Therapy in Survivors of Out-of-Hospital Sudden Cardiac Death Without Inducible Arrhythmias** *Brian G. Crandall, Cynthia D. Morris, Joel E. Cutler, Peter J. Kudenchuk, Jan L. Peterson, L. Bing Liem, David R. Broudy, H. Leon Greene, Blair D. Halperin, John H. McAnulty, Jack Kron*

1193 **Assessment of Autonomic Function in Patients With Neurally Mediated Syncope: Augmented Cardiopulmonary Baroreceptor Responses to Graded Orthostatic Stress** *James F. Sneddon, Peter J. Counihan, Yaver Bashir, Guy A. Haywood, David E. Ward, A. John Camm*

1199 **Effects of Oral Theophylline on Sick Sinus Syndrome** *Daiji Saito, Katashi Matsubara, Hiroshi Yamanari, Naotsugu Obayashi, Sinji Uchida, Kiyoaki Maekawa, Tetsuya Sato, Kouzou Mizuo, Hiroo Kobayashi, Shoichi Haraoka*

1205 **Computer-Guided Surgery for Tachyarrhythmias in Children: Current Results and Expectations** *David A. Ott, Denton A. Cooley, Jeffrey Moak, Richard A. Friedman, James Perry, Arthur Garson, Jr.*

Valvular Heart Disease

1211 **Color Flow Imaging Compared With Quantitative Doppler Assessment of Severity of Mitral Regurgitation: Influence of Eccentricity of Jet and Mechanism of Regurgitation** *Maurice Enriquez-Sarano, A. Jamil Tajik, Kent R. Bailey, James B. Seward*

1220 **Prevalence of Aortic Valve Abnormalities in the Elderly: An Echocardiographic Study of a Random Population Sample** *Magnus Lindroos, Markku Kupari, Juhani Heikkilä, Reijo Tilvis*

1226 **Transesophageal Echocardiography in Right-Sided Endocarditis** *José Alberto San Román, Isidre Vilacosta, José Luis Zamorano, Carlos Almería, Luis Sánchez-Harguindey*

Transesophageal Echocardiography

1231 **Transesophageal Echocardiographic Diagnosis of Right to Left Shunting Across the Foramen Ovale in Adults Without Prior Stroke** *Eric K. Louie, Steven N. Konstadt, Tadikonda L. K. Rao, Patrick J. Scanlon*

EXPERIMENTAL STUDIES

1238 **Eighteen-Hour Preservation of Rat Hearts With Hexanol and Pyruvate Cardioplegia** *Shoji Kojima, Shao T. Wu, Joan Wikman-Coffelt, William W. Parmley*

1245 **Myocardial Infarct Extension During Reperfusion After Coronary Artery Occlusion: Pathologic Evidence** *Andrew Farb, Frank D. Kolodgie, Marie Jenkins, Renu Virmani*

1254 **Effects of Cyclosporine, Prednisolone and Aspirin on Rat Autoimmune Giant Cell Myocarditis** *Shaosong Zhang, Makoto Kodama, Haruo Hanawa, Tohru Izumi, Akira Shibata, Fumiaki Masani*

1261 **Assessment of Coronary Conductance and Resistance Vessel Reactivity in Response to Nitroglycerin, Ergonovine and Adenosine: In Vivo Studies With Simultaneous Intravascular Two-Dimensional and Doppler Ultrasound** *Krishnankutty Sudhir, John S. MacGregor, Sophie D. Barbant, Elyse Foster, Peter J. Fitzgerald, Kanu Chatterjee, Paul G. Yock*

1269 **Combined Thromboxane A_2 Synthase Inhibition and Prostaglandin Endoperoxide Receptor Antagonism Limits Myocardial Infarct Size After Mechanical Coronary Occlusion and Reperfusion at Doses Enhancing Coronary Thrombolysis by Streptokinase** *Godelieve Vandeplassche, Carlo Hermans, Yves Somers, Frans Van de Werf, Fred de Clerck*

1280 **Dietary Fish Oil Supplementation Reduces Myocardial Infarct Size in a Canine Model of Ischemia and Reperfusion** *Helgi J. Oskarsson, John Godwin, Rolf M. Gunnar, John X. Thomas, Jr.*

1286 **Left Ventricular Pseudohypertrophy in Cardiac Tamponade: An Echocardiographic Study in a Canine Model** *Elio Di Segni, Micha S. Feinberg, Mickey Sheinowitz, Michael Motro, Alexander Battler, Elieser Kaplinsky, Zvi Vered*

EDITOR'S PAGE

1295 **When Is Bigger Too Big?** *William W. Parmley*

SPECIAL SECTIONS

ACC News

1297 **President's Page: Convocation Address** *Sylvan Lee Weinberg*

1299 **1993–1994 Board of Governors**

1302 **Letters to the Editor**

MAY 1993 VOLUME 21 NUMBER 6

CLINICAL STUDIES

CORONARY ARTERY DISEASE

1305 **Identification of Extensive Coronary Artery Disease in Women by Exercise Single-Photon Emission Computed Tomographic (SPECT) Thallium Imaging** *Shung C. Chae, Jaekyeong Heo, Abdulmassih S. Iskandrian, Valerie Wasserleben, Virginia Cave*

1312 **Comparison in Women Versus Men of Composition of Atherosclerotic Plaques in Native Coronary Arteries and in Saphenous Veins Used as Aortocoronary Conduits** *Susanne L. Mautner, Fengru Lin, Gisela C. Mautner, William C. Roberts*

1319 **Sequential Teboroxime Imaging During and After Balloon Occlusion of a Coronary Artery** *Louis I. Heller, Bernard J. Villegas, Bonnie H. Weiner, Brenda A. McSherry, Seth T. Dahlberg, Jeffrey A. Leppo*

1328 ***Editorial Comment*** **The Proper Tool for the Job** *Elias H. Botvinick*

1332 **Adenosine Thallium-201 Is Superior to Exercise Thallium-201 for Detecting Coronary Artery Disease in Patients With Left Bundle Branch Block** *James H. O'Keefe, Jr., Timothy M. Bateman, Carrie S. Barnhart*

1339 **Progression of Coronary Artery Disease Is Dependent on Anatomic Location and Diameter** *Stefan Jost, Jaap W. Deckers, Peter Nikutta, Wolfgang Rafflenbeul, Birgitt Wiese, Hartmut Hecker, Peter Lippolt, Paul R. Lichtlen and the INTACT Investigators*

1347 **Angina and Persistent Exercise Thallium Defects: Independent Risk Factors in Elective Vascular Surgery** *Edward O. McFalls, Kathie M. Doliszny, Frank Grund, Edward Chute, Elliot Chesler*

1353 ***Editorial Comment*** **Assessment of Perioperative Risk: Have We Put the Cart Before the Horse?** *Barry M. Massie, Dennis T. Mangano*

1357 **Isovolumetric Relaxation Flow in Patients With Ischemic Heart Disease** *Yasuhiro Tanaka, Kazuhiko Nakamura, Nobuchika Kuroiwa, Motoharu Odachi, Kousuke Mawatari, Madoka Onimaru, Jun-ichi Sanada, Terukatsu Arima*

ANGINA

1365 **Randomized Placebo-Controlled Trial of Amlodipine in Vasospastic Angina** *Robert A. Chahine, Robert L. Feldman, Thomas D. Giles, Pascal Nicod, Albert E. Raizner, Robert J. Weiss, Svetislav K. Vanov and the Amlodipine Study 160 Group*

INTERVENTIONAL CARDIOLOGY

1371 **Percutaneous Transluminal Coronary Angioplasty in Chronic Coronary Artery Occlusion** *James T. Stewart, Lin Denne, Timothy J. Bowker, David A. Mulcahy, Miles G. Williams, Nigel P. Buller, Ulrich Sigwart, Anthony F. Rickards*

1377 **Aspirin, but Not Heparin, Suppresses the Transient Increase in Thromboxane Biosynthesis Associated With Cardiac Catheterization or Coronary Angioplasty** *Giovanni Ciabattoni, Shahrom Ujang, Piyamitr Sritara, Felicita Andreotti, Graham Davies, Bianca M. Simonetti, Carlo Patrono, Attilio Maseri*

1382 **Restenosis After Directional Coronary Atherectomy and Balloon Angioplasty: Comparative Analysis Based on Matched Lesions** *Victor A. Umans, Walter Hermans, David P. Foley, Sipke Strikwerda, Marcel van den Brand, Peter de Jaegere, Pim J. de Feyter, Patrick W. Serruys*

THROMBOLYSIS

1391 **Impact of Early Perfusion Status of the Infarct-Related Artery on Short-Term Mortality After Thrombolysis for Acute Myocardial Infarction: Retrospective Analysis of Four German Multicenter Studies** *Albrecht Vogt, Rainer von Essen, Ulrich Tebbe, Werner Feuerer, Karl-Friedrich Appel, Karl-Ludwig Neuhaus*

1396 ***Editorial Comment*** **Trickle Down Thrombolysis** *A. Michael Lincoff, Eric J. Topol*

VALVULAR HEART DISEASE

1399 **Genesis of the Austin Flint Murmur: Relation to Mitral Inflow and Aortic Regurgitant Flow Dynamics** *Shigefumi Emi, Nobuo Fukuda, Takashi Oki, Arata Iuchi, Tomotsugu Tabata, Koichi Kiyoshige, Takashi Fujimoto, Kazuyo Manabe, Susumu Ito*

ARRHYTHMIAS

1406 **Ventricular Fibrillation in Patients Without Significant Structural Heart Disease: A Multicenter Experience With Implantable Cardioverter-Defibrillator Therapy** *Marc D. Meissner, Michael H. Lehmann, Russell T. Steinman, Robert D. Mosteller, Masood Akhtar, Hugh Calkins, David S. Cannom, Andrew E. Epstein, Richard N. Fogoros, L. Bing Liem, Francis E. Marchlinski, Robert J. Myerburg, Enrico P. Veltri*

1413 **Randomized Controlled Comparison of Antitachycardia Pacing Algorithms for Termination of Ventricular Tachycardia** *David Newman, Paul Dorian, Judy Hardy*

1419 **Value of Signal-Averaged Electrocardiography, Radionuclide Ventriculography, Holter Monitoring and Clinical Variables for Prediction of Arrhythmic Events in Survivors of Acute Myocardial Infarction in the Thrombolytic Era** *Brian M. McClements, A. A. Jennifer Adgey*

1428 **Effects of Procainamide on the Signal-Averaged Electrocardiogram in Relation to the Results of Programmed Ventricular Stimulation in Patients With Sustained Monomorphic Ventricular Tachycardia** *Piotr Kulakowski, Yaver Bashir, Spencer Heald, Vince Paul, Mark H. Anderson, Sheila Gibson, Marek Malik, A. John Camm*

1440 **Effect on Coronary Artery Anatomy of Radiofrequency Catheter Ablation of Atrial Insertion Sites of Accessory Pathways** *Allen J. Solomon, Cynthia M. Tracy, John F. Swartz, Kathleen M. Reagan, Pamela E. Karasik, Ross D. Fletcher*

PHARMACOLOGY

1445 **Effect of Therapy With an Angiotensin-Converting Enzyme Inhibitor on Hemodynamic and Counterregulatory Responses During Continuous Therapy With Nitroglycerin** *John D. Parker, John O. Parker*

PEDIATRIC CARDIOLOGY

1454 **Left Ventricular Diastolic Dysfunction Late After Coarctation Repair in Childhood: Influence of Left Ventricular Hypertrophy** *Otto N. Krogmann, Spyros Rammos, Markus Jakob, William J. Corin, Otto M. Hess, Maurice Bourgeois*

1461 **Selective Pulmonary and Systemic Vasodilator Effects of Amrinone in Children: New Therapeutic Implications** *Bradley W. Robinson, Henry Gelband, Madeleen S. Mas*

1466 **Cardiac Teratogenesis of Halogenated Hydrocarbon–Contaminated Drinking Water** *Brenda V. Dawson, Paula D. Johnson, Stanley J. Goldberg, Judith B. Ulreich*

1473 *Editorial Comment* **Heart Disease and the Environment** *Stanton A. Glantz*

METHODS

1475 **Estimation of Right Ventricular Mass in Normal Subjects and in Patients With Primary Pulmonary Hypertension by Nuclear Magnetic Resonance Imaging** *Jose Katz, John Whang, Lawrence M. Boxt, Robyn J. Barst*

1482 **Measurement Accuracy of Cardiac Output in Humans: Indicator-Dilution Technique Versus Geometric Analysis by Ultrafast Computed Tomography** *Peter Frederick Ludman, Andrew Justin Stewart Coats, Philip Alexander Poole-Wilson, Robert Simon Owen Rees*

EXPERIMENTAL STUDIES

1490 **Is the Watanabe Heritable Hyperlipidemic Rabbit a Suitable Experimental Model for Percutaneous Transluminal Coronary Angioplasty in Humans? A Light Microscopic, Immunohistochemical and Ultrastructural Study** *Hideki Wanibuchi, Koert P. Dingemans, Anton E. Becker, Makiko Ueda, Takahiko Naruko, Shinichi Tanizawa, Kenji Nakamura*

1497 **Coronary Circulation in Dogs With an Experimental Decrease in Aortic Compliance** *Hideki Watanabe, Sadanori Ohtsuka, Masaaki Kakihana, Yasuro Sugishita*

1507 **Ultrasound Enhancement of Thrombolysis and Reperfusion In Vitro** *David Harpaz, Xucai Chen, Charles W. Francis, Victor J. Marder, Richard S. Meltzer*

1512 **Low Pressure Radiofrequency Balloon Angioplasty: Evaluation in Porcine Peripheral Arteries** *Daniel B. Fram, Linda D. Gillam, Thomas A. Aretz, Rogelio V. Tangco, Joseph F. Mitchel, John P. Fisher, Brenda W. Sanzobrino, Francis J. Kiernan, Sigfus Nikulasson, Arnold Fieldman, Raymond G. McKay*

1522 **Coupling Between Regional Myocardial Oxygen Consumption and Contraction Under Altered Preload and Afterload** *Yoichi Goto, Shiho Futaki, Osamu Kawaguchi, Katsuya Hata, Toshiyuki Takasago, Akio Saeki, Takehiko Nishioka, Tad W. Taylor, Hiroyuki Suga*

EDITOR'S PAGE

1532 **What Does FACC Mean to You?** *William W. Parmley*

SPECIAL SECTIONS

ACC NEWS

1534 **President's Page: The Prevention Paradox** *Sylvan Lee Weinberg*

1536 **LETTERS TO THE EDITOR**

1537 **CORRECTIONS**

1538 **BOOKS RECEIVED**

JUNE 1993 VOLUME 21 NUMBER 7

REVIEW ARTICLE

1539 **Balloon Angioplasty for the Treatment of Lesions in Saphenous Vein Bypass Grafts** *Pim J. de Feyter, Robert-Jan van Suylen, Peter P. T. de Jaegere, Eric J. Topol, Patrick W. Serruys*

CLINICAL STUDIES

INTERVENTIONAL CARDIOLOGY

1550 **Excimer Laser–Assisted Coronary Angioplasty for Lesions Containing Thrombus** *Pedro Estella, Thomas J. Ryan, Jr., Joel S. Landzberg, John A. Bittl*

1557 **Serial Angiographic Follow-Up After Palmaz-Schatz Stent Implantation: Comparison With Conventional Balloon Angioplasty** *Takeshi Kimura, Hideyuki Nosaka, Hiroyoshi Yokoi, Masashi Iwabuchi, Masakiyo Nobuyoshi*

1564 **Atherectomy of the Subclavian Artery for Patients With Symptomatic Coronary-Subclavian Steal Syndrome** *Jeffrey A. Breall, William Grossman, Isaac E. Stillman, Laurie E. Gianturco, Ducksoo Kim*

1568 **Mitral Valve Area Calculations Immediately After Percutaneous Balloon Mitral Valvuloplasty: Effect of the Atrial Septal Defect** *Pravin Manga, Surendra Singh, Simca Brandis, Brian Friedman*

1574 **Spectral Analysis of Flow Velocity in the Contralateral Artery During Coronary Angioplasty: A New Method for Assessing Collateral Flow** *Jan J. Piek, Jacques J. Koolen, Alexander C. Metting van Rijn, Hans Bot, Gerard Hoedemaker, George K. David, Arend J. Dunning, Jos A. E. Spaan, Cees A. Visser*

ISCHEMIA

1583 **Dobutamine Thallium-201 Tomography for Evaluating Patients With Suspected Coronary Artery Disease Unable to Undergo Exercise or Vasodilator Pharmacologic Stress Testing** *John T. Hays, John J. Mahmarian, Angela J. Cochran, Mario S. Verani*

1591 **Simultaneous Dobutamine Stress Echocardiography and Technetium-99m Isonitrile Single-Photon Emission Computed Tomography in Patients With Suspected Coronary Artery Disease** *Tamas Forster, Albert J. McNeill, Alessandro Salustri, Ambroos E. M. Reijs, El-Said M. El-Said, Jos R. T. C. Roelandt, Paolo M. Fioretti*

1597 **Attenuation of Increased Regional Myocardial Oxygen Consumption During Exercise As a Major Cause of Warm-Up Phenomenon** *Yasushi Okazaki, Kazuhisa Kodama, Hiroshi Sato, Masafumi Kitakaze, Atsushi Hirayama, Masayoshi Mishima, Masatsugu Hori, Michitoshi Inoue*

1605 **Discordance Between Effects of Anti-Ischemic Therapy on Ambulatory Ischemia, Exercise Performance and Anginal Symptoms in Patients With Stable Angina Pectoris** *Steven Borzak, Terence Fenton, Stephen P. Glasser, Thomas L. Shook, Gail MacCallum, Phillip M. Young, Peter H. Stone, for the Angina and Silent Ischemia Study Group (ASIS)*

ELECTROPHYSIOLOGY

1612 **A Simple Technique for Selective Radiofrequency Ablation of the Slow Pathway in Atrioventricular Node Reentrant Tachycardia** *Delon Wu, San-Jou Yeh, Chun-Chieh Wang, Ming-Shien Wen, Fun-Chung Lin*

1622 *Editorial Comment* **What Price Success?** *Vance J. Plumb*

1624 **Electrophysiologic Variables Characterizing the Induction of Ventricular Tachycardia Versus Ventricular Fibrillation After Myocardial Infarction: Relation Between Ventricular Late Potentials and Coupling Intervals for the Induction of Sustained Ventricular Tachyarrhythmias** *Antoni Martinez-Rubio, Mohammad Shenasa, Martin Borggrefe, Xu Chen, Frank Benning, Günter Breithardt*

1632 **Predictors of Defibrillation Efficacy in Patients Undergoing Epicardial Defibrillator Implantation** *James W. Leitch, Raymond Yee and the Multicenter Pacemaker-Cardioverter-Defibrillator (PCD) Investigators Group*

1638 **Do Patients With an Implantable Defibrillator Live Longer?** *Dirk Böcker, Michael Block, Frank Isbruch, Dietmar Wietholt, Dieter Hammel, Martin Borggrefe, Günter Breithardt*

1645 **The Signal-Averaged P Wave Duration: A Rapid and Noninvasive Marker of Risk of Atrial Fibrillation** *Steven A. Guidera, Jonathan S. Steinberg*

1652 **Global T Wave Inversion: Long-Term Follow-Up** *Lon A. Walder, David H. Spodick*

VALVULAR DISEASE

1657 **Prognosis After Valve Replacement in Patients With Severe Aortic Stenosis and a Low Transvalvular Pressure Gradient** *Walter C. Brogan III, Paul A. Grayburn, Richard A. Lange, L. David Hillis*

1661 **Effect of Thrombolytic Therapy on the Evolution of Significant Mitral Regurgitation in Patients With a First Inferior Myocardial Infarction** *Jonathan Leor, Micha S. Feinberg, Zvi Vered, Hanoch Hod, Elieser Kaplinsky, Uri Goldbourt, Smadar Truman, Michael Motro*

CARDIOMYOPATHY

1667 **Active Myocardial Damage Without Attending Inflammatory Response in Dilated Cardiomyopathy** *Damià Obrador, Manel Ballester, Ignasi Carrió, Josep M. Augé, Conxa Moya López, Immaculada Bosch, Vicens Martí, Ramón Bordes*

1672 **A Double-Blind, Placebo-Controlled Crossover Trial of Nadolol and Verapamil in Mild and Moderately Symptomatic Hypertrophic Cardiomyopathy** *David M. Gilligan, Wan L. Chan, Jo Joshi, Peter Clarke, Astrid Fletcher, Shirley Krikler, Celia M. Oakley*

LEFT VENTRICULAR HYPERTROPHY

1680 **Improved Detection of Echocardiographic Left Ventricular Hypertrophy Using a New Electrocardiographic Algorithm** *James E. Norman, Jr., Daniel Levy, Gregory Campbell, James J. Bailey*

DIASTOLIC FUNCTION

1687 **Pulmonary Venous Flow Velocities Recorded by Transthoracic Doppler Ultrasound: Relation to Left Ventricular Diastolic Pressures** *Ole Rossvoll, Liv K. Hatle*

1697 ***Editorial Comment*** **Doppler Assessment of Left Ventricular Diastolic Function: The Refinements Continue** *Christopher P. Appleton*

CONTRAST MEDIA

1701 **Net Costs From Three Perspectives of Using Low Versus High Osmolality Contrast Medium in Diagnostic Angiocardiography** *Neil R. Powe, Amy J. Davidoff, Richard D. Moore, Jeffrey A. Brinker, Gerard F. Anderson, Marc R. Litt, Ramana Gopalan, Sandra L. Graziano, Earl P. Steinberg*

1710 ***Editorial Comment*** **Economic Evaluation of Low Osmolality Contrast Media** *Mark A. Hlatky*

PEDIATRIC CARDIOLOGY

1712 **Conal Anatomy in 119 Patients With d-Loop Transposition of the Great Arteries and Ventricular Septal Defect: An Echocardiographic and Pathologic Study** *Luciano Pasquini, Stephen P. Sanders, Ira A. Parness, Steven D. Colan, Stella Van Praagh, John E. Mayer, Jr., Richard Van Praagh*

1722 **Ethnicity and Socioeconomic Status: Impact on the Diagnosis of Congenital Heart Disease** *David E. Fixler, Patricia Pastor, Ellen Sigman, Clayton W. Eifler*

1727 **Generalized Arteriopathy in Williams Syndrome: An Intravascular Ultrasound Study** *Azaria J. J. T. Rein, Tamar J. Preminger, Stanton B. Perry, James E. Lock, Stephen P. Sanders*

EXPERIMENTAL STUDIES

1731 **Rapid Ventricular Pacing in Dogs With Right Ventricular Outflow Tract Obstruction: Insights Into a Mechanism of Sudden Death in Postoperative Tetralogy of Fallot** *William J. Dreyer, Stephen M. Paridon, David J. Fisher, Arthur Garson, Jr.*

1738 ***Editorial Comment*** **From the Bedside to the Basic Science Laboratory: Arrhythmias in Fallot's Tetralogy** *Bertrand A. Ross*

1741 **Accurate Systolic Wall Thickening by Nuclear Magnetic Resonance Imaging With Tissue Tagging: Correlation With Sonomicrometers in Normal and Ischemic Myocardium** *Joao A. C. Lima, Richmond Jeremy, William Guier, Sophie Bouton, Elias A. Zerhouni, Elliot McVeigh, Maurice B. Buchalter, Myron L. Weisfeldt, Edward P. Shapiro, James L. Weiss*

EDITOR'S PAGE

1752 **In Defense of Physicians** *William W. Parmley*

SPECIAL SECTIONS

ACC NEWS

1753 **President's Page: Toward an ACC Cardiovascular Policy Institute** *Sylvan Lee Weinberg*

1755 **1993-94 Committee Appointments**

1761 LETTERS TO THE EDITOR

INDEXES

1763 **Author Index**

1767 **Subject Index**